

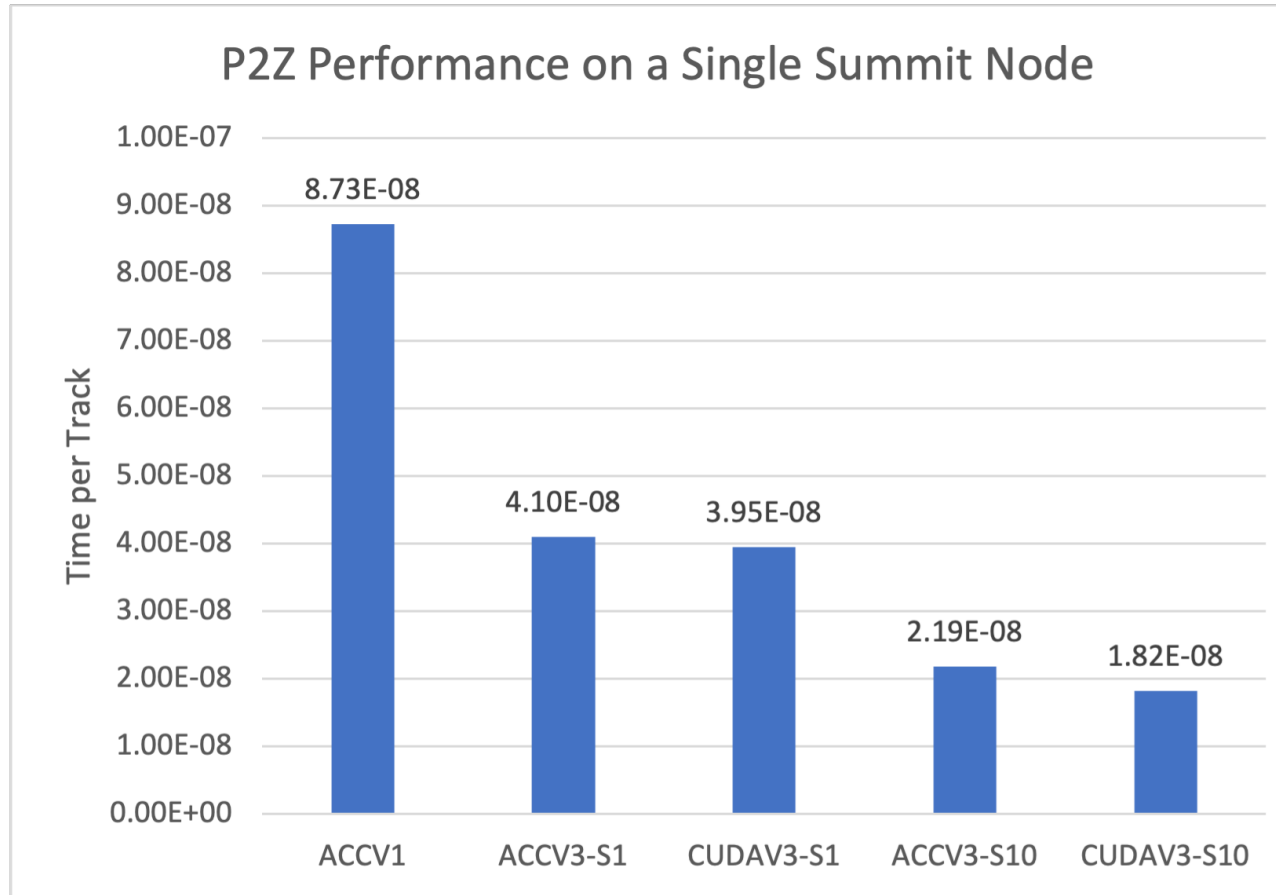
# OpenACC vs. CUDA P2Z Performance Comparison on a Single Summit Node

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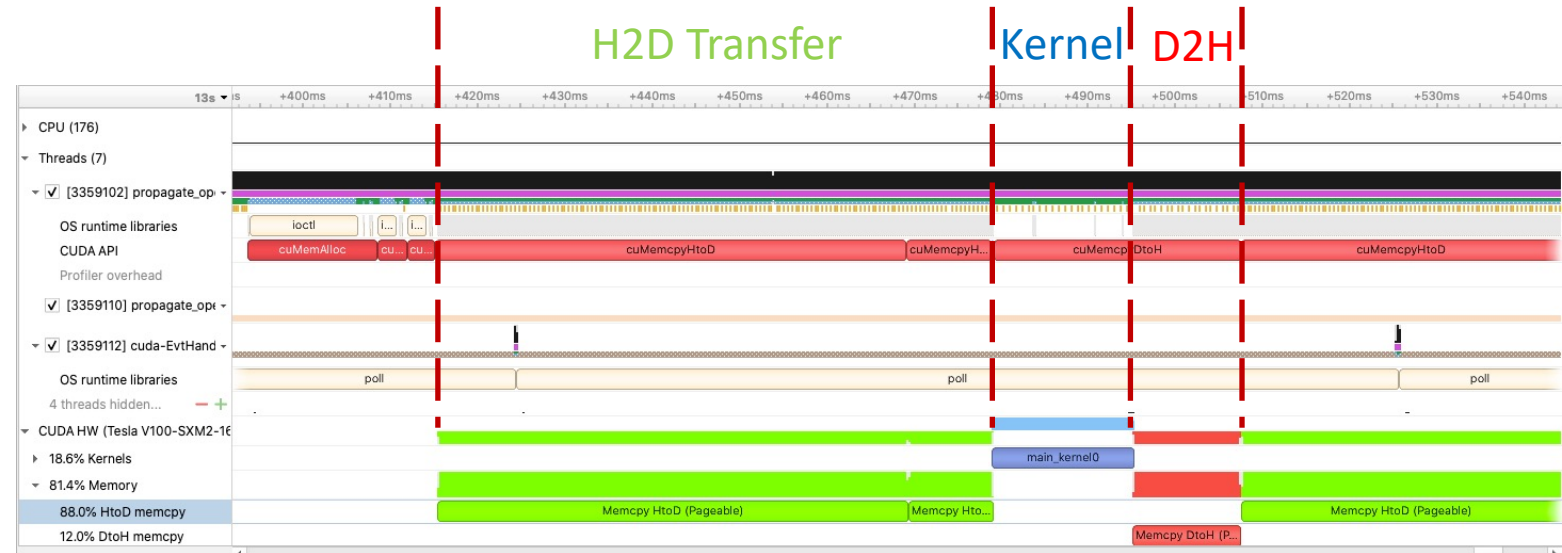
# P2Z Performance: OpenACC vs. CUDA



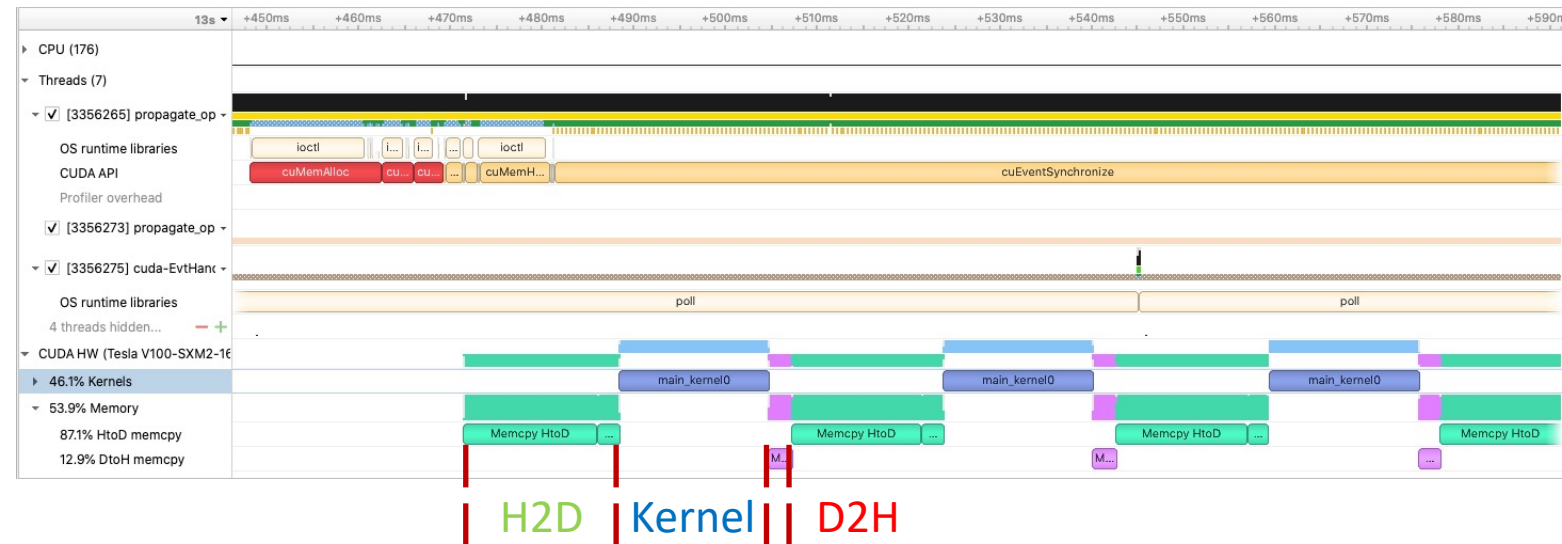
- **ACCV1**: OpenACC Version 1 – Synchronous
- **ACCV3-S1**: OpenACC Version 3 – Asynchronous with 1 stream
- **ACCV3-S10**: OpenACC Version 3 – Asynchronous with 10 streams
- **CUDAV3-S1**: CUDA Version 3 – Asynchronous with 1 stream
- **CUDAV3-S10**: CUDA Version 3 – Asynchronous with 10 streams

# P2Z Performance Profiling: Sync vs. Async

- **ACCV1:** OpenACC Version 1 – Synchronous



- **ACCV3-S1:** OpenACC Version 3 – Asynchronous with 1 stream

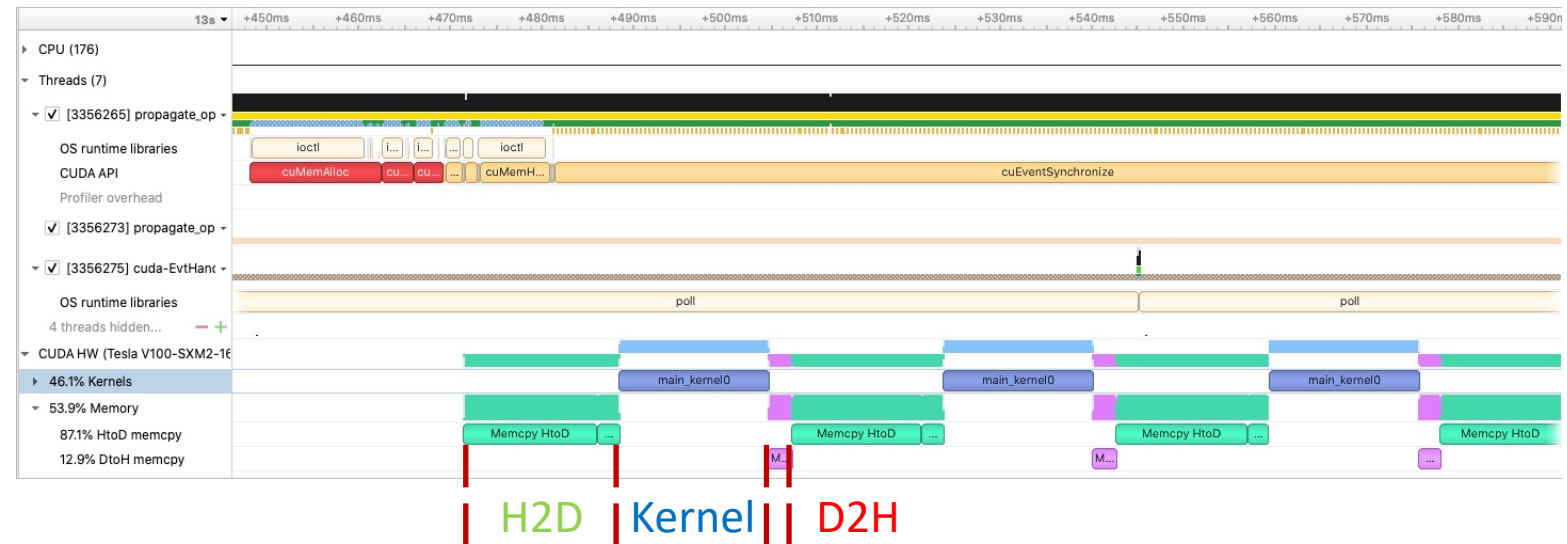


# P2Z Performance Profiling: Unpinned vs. Pinned (Pageable vs. Page-locked)

- **ACCV1-prepin:**  
OpenACC Version 1 –  
Synchronous & prepinned  
host memory

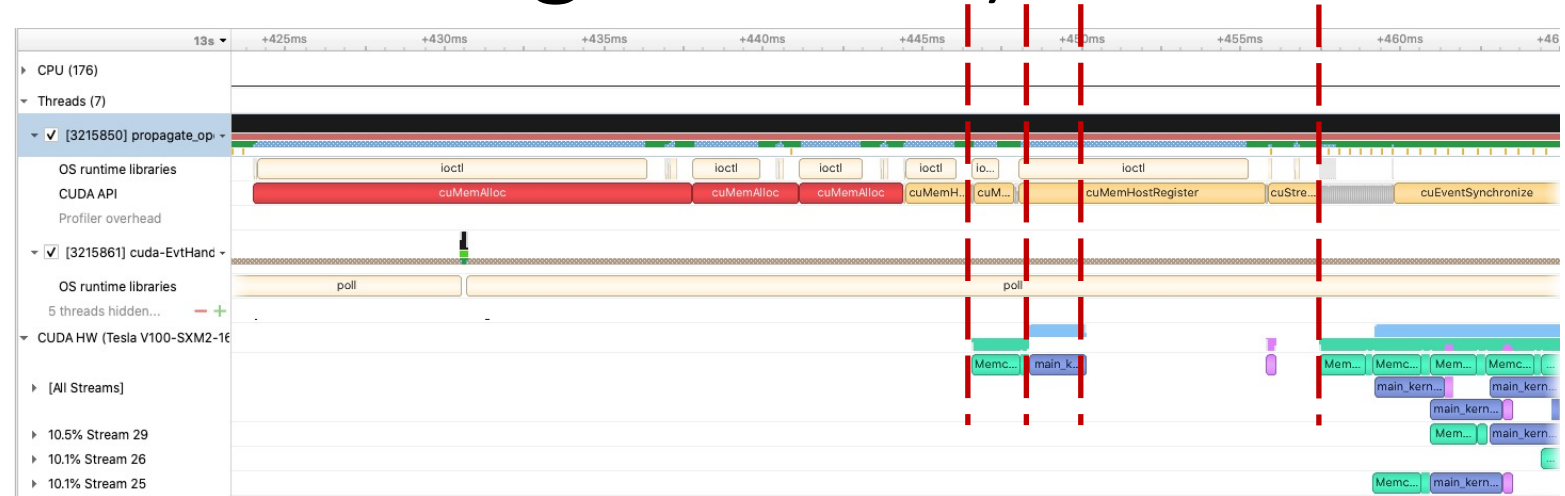


- **ACCV3-S1:** OpenACC  
Version 3 – Asynchronous  
with 1 stream

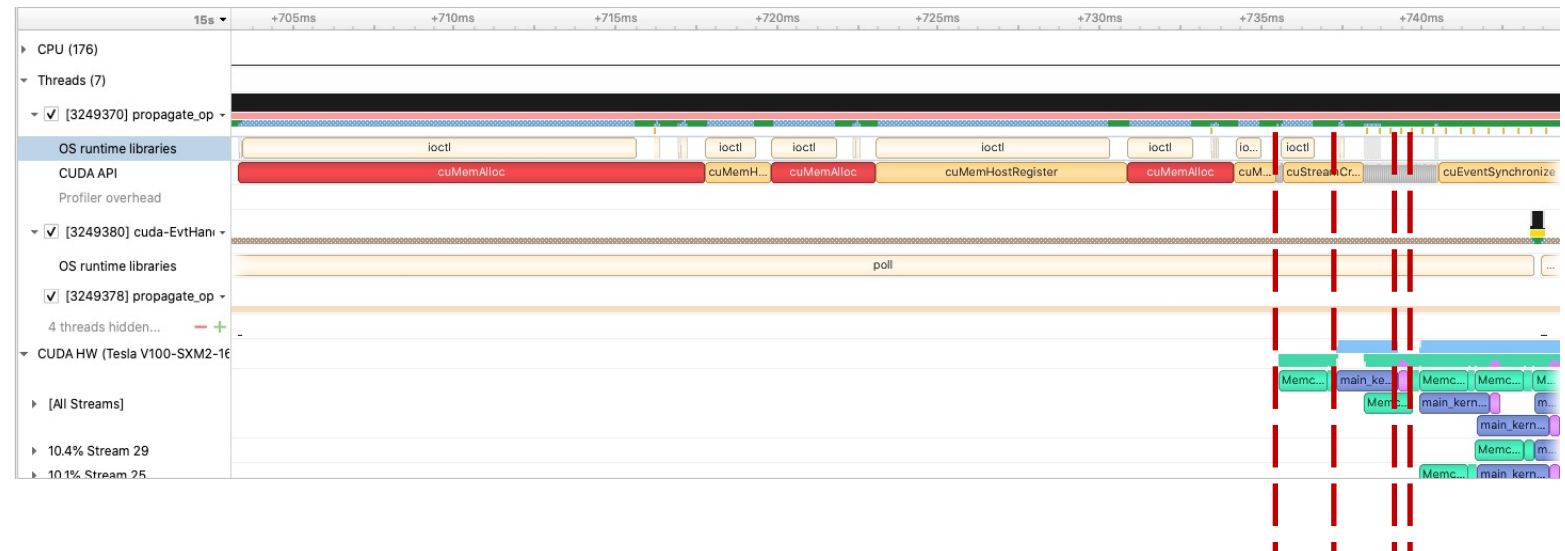


# P2Z Performance Profiling: Unpinned vs. Pinned (Pageable vs. Page-locked)

- **ACCV3-S10:** OpenACC Version 3 – Asynchronous with 10 streams

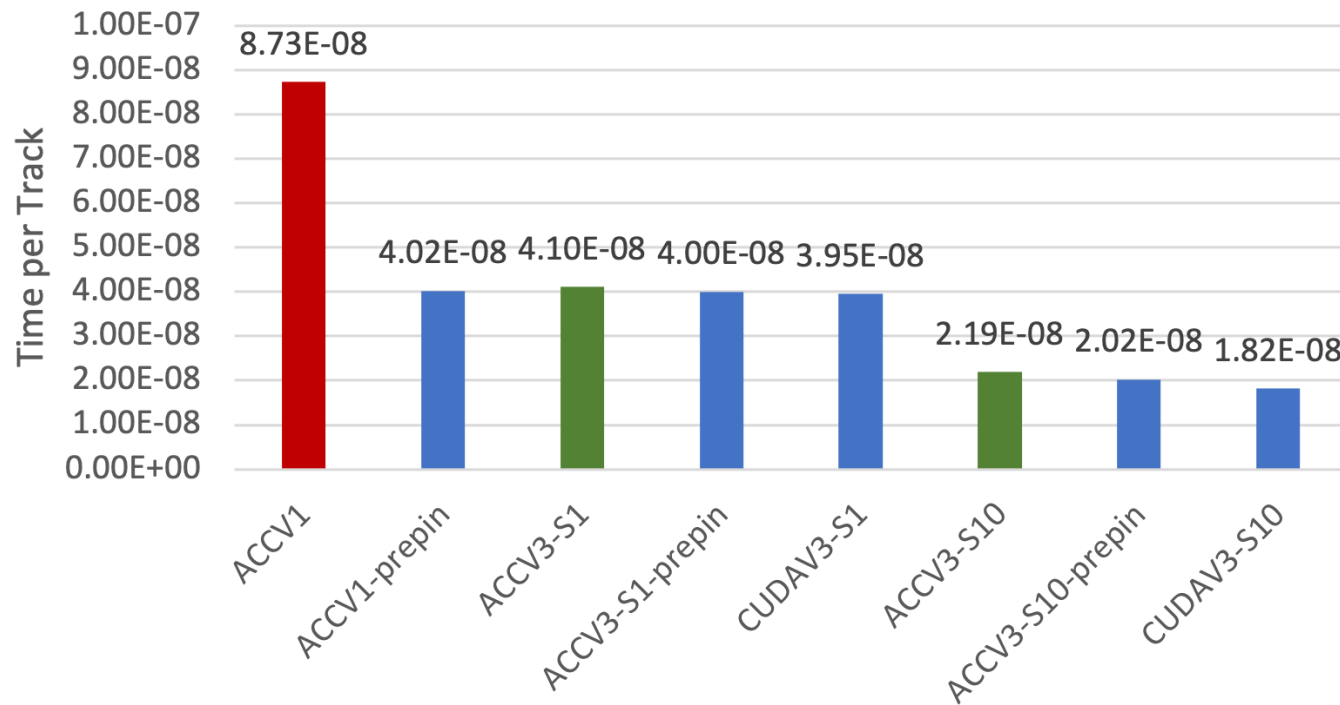


- **ACCV3-S10-prepin:** OpenACC Version 3 – Asynchronous with 10 streams & prepinned host memory



# P2Z Performance: OpenACC vs. CUDA

P2Z Performance on a Single Summit Node

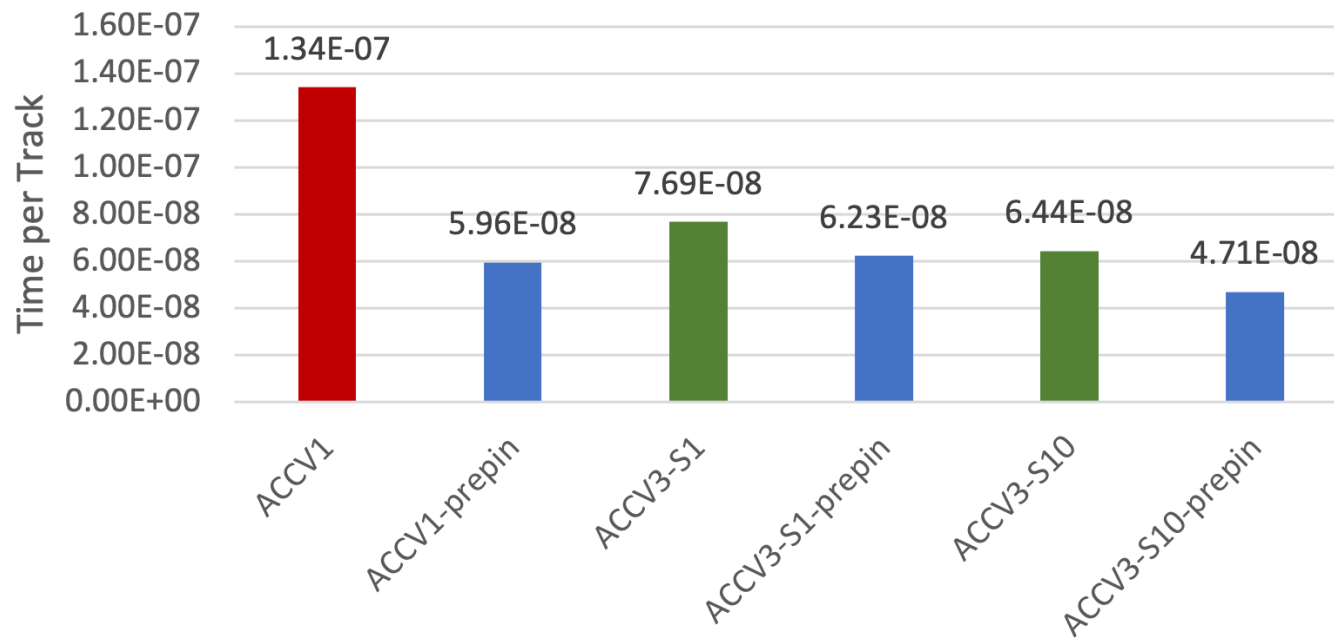


- **ACCV1:** OpenACC Version 1 – Synchronous
- **ACCV1-prepin:** OpenACC Version 1 – Synchronous & prepinned host memory
- **ACCV3-S1:** OpenACC Version 3 – Asynchronous with 1 stream
- **ACCV3-S1-prepin:** OpenACC Version 3 – Asynchronous with 1 stream & prepinned host memory
- **CUDAV3-S1:** CUDA Version 3 – Asynchronous with 1 stream
- **ACCV3-S10:** OpenACC Version 3 – Asynchronous with 10 streams
- **ACCV3-S10-prepin:** OpenACC Version 3 – Asynchronous with 10 streams & prepinned host memory
- **CUDAV3-S10:** CUDA Version 3 – Asynchronous with 10 streams

# P2Z Performance: OpenACC/HIP

## Performance on a Pre-Frontier Node

P2Z Performance on a pre-Frontier Node  
(AMD EPIC 7272 CPU & AMD Instinct MI100 GPU)



- **ACCV1:** OpenACC Version 1 – Synchronous
- **ACCV1-prepin:** OpenACC Version 1 – Synchronous & prepinned host memory
- **ACCV3-S1:** OpenACC Version 3 – Asynchronous with 1 stream
- **ACCV3-S1-prepin:** OpenACC Version 3 – Asynchronous with 1 stream & prepinned host memory
- **ACCV3-S10:** OpenACC Version 3 – Asynchronous with 10 streams
- **ACCV3-S10-prepin:** OpenACC Version 3 – Asynchronous with 10 streams & prepinned host memory